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Application No. 10/731,409

Filed: December 9, 2003

TC Art Unit: 3677

Confirmation No.: 3924

REMARKS

Claims 1 and 2 are pending within the application.

Applicants have amended claim 1 above. The amendment has support in the specification such that new matter has not been presented herein.

The above amendments to the claims should not be construed as acquiescence to the rejections by the Examiner and were provided solely to expedite the prosecution of the application. Applicants reserve the right to pursue the claims as originally filed in the present or a separate application(s).

Applicants respectfully request reconsideration and withdrawal of the rejections by the Examiner in view of the remarks presented herein.

Claim Rejections 35 U.S.C. § 102(e)

The Examiner has rejected claims 1 and 2 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent Application Publication Number 2003/0224085 to Onuma, et al. ("Onuma"). Claim 1 has been amended and the grounds for rejection are believed to be moot. Applicants further submit that the pending claims as amended are not anticipated or made obvious by the Onuma reference and any rejections by the Examiner under 35 U.S.C. § 102(e) should be withdrawn.

Specifically, according to the Examiner, the Onuma reference discloses:

A coupling structure between screw shaft (38A) and a motor shaft (58) of an electric motor an injection device couples between the screw shaft and the motor shaft of the electric motor by engagement of splines (Figs. 1, 4 and 5) with each

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other provided on the screw shaft and the motor shaft. The spline of the motor shaft is provided on an inner periphery of a bearing sleeve (58C) that is detachably mounted to the motor shaft by fitting the bearing into a recess formed inside a motor shaft end and fastening a flange integrally formed on an outer periphery the bearing sleeve to an end face of the motor shaft with bolt (Figs. 1,4 and 5). The bearing sleeve has an annular groove at the inner periphery of an opening for the side of the screw shaft (Fig. 4) and a ring member (580).

However, claim 1 has been amended to recite that the bearing sleeve comprises an inner diameter engaging with the shaft end of the screw shaft, a flange integrally formed on the outer periphery of the bearing sleeve, and an outer diameter of the rear portion of the bearing sleeve at the rear of the flange, formed into a size fitted to a recess formed inside of the motor shaft end, an inner spline disposed at the inner periphery of the bearing sleeve, the bearing sleeve is detachably mounted to the motor shaft by fitting the rear portion of the bearing sleeve into said recess and fastening the flange on an end face of the motor shaft with a bolt, wherein the inner spline serves as the motor shaft spline in the recess; and the screw shaft spline is formed on an outer periphery on a shaft end portion of the screw shaft. recite a screw shaft spline and a motor shaft spline are engaged with each other, wherein, comprising a

The Examiner identifies 58 as a motor shaft, however, 58 is not a motor shaft but a shaft coupling section for coupling a spline shaft 38A and the spline shaft 38a is rotatable in the coupling section 58. The coupling section 58 is connected to a linear-movement shaft 64 which does not rotate. On the other

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hand, the motor shaft rotates the screw shaft in the present invention.

According to Onuma, a spline nut 50 engages the outer circumference of the spline shaft 38A for the purpose of rotating the shaft 38. See, e.g., Onuma, para. 0021. More specifically, when the charging motor 47 is rotated, the spline shaft 38A is rotated via pulley 48, pulley 52, and the spline nut 50. There is no recess formed inside of the end of the motor shaft. There is no bearing sleeve fitted into that recess. There is no inner spline formed at the inner periphery of the bearing sleeve. Moreover, the inner spline does not serve as the motor shaft spline to be engaged with the screw shaft spline as claimed in the present claim 1.

Newly Cited References

Japanese Utility Model Sh060-157214 is being filed contemporaneously herewith. Fig. 2 discloses a coupling apparatus comprising a driving shaft 1, an inner sleeve 31 fitted at end of the driving shaft 1, an outer sleeve 32 fitted to the inner sleeve 31, an injection screw 2. According to the Japanese Utility Model, a spline 33 is formed at an inner surface of the inner sleeve and the outer sleeve and a spline 21 is formed at the end portion of the screw 2. Spline 21 and spline 33 are engaged with each other.

The Japanese Utility Model reference, however, does not teach, mention or suggest a flange integrally formed on the outer periphery of the bearing sleeve; an outer diameter of a rear portion of the bearing sleeve at the rear of the flange formed into a size fitted to a recess formed inside of the motor

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shaft end; or an inner spline disposed at the inner periphery of the bearing sleeve. Furthermore, the Japanese Utility Model does not teach, mention or suggest that the bearing sleeve is detachably mounted to the motor shaft by fitting the rear portion of the bearing sleeve into the recess and fastening the flange on an end face of the motor shaft with a bolt such that the inner spline serves as the motor shaft spline in the recess or that and the screw shaft spline is formed on an outer periphery on a shaft end portion of the screw shaft as claimed in the amended claim 1.

CONCLUSION

Based on the remarks presented herein, reconsideration and withdrawal of the rejections by the Examiner and allowance of the application with the pending claims are respectfully requested.

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The Examiner is also encouraged to telephone the undersigned attorney so as to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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